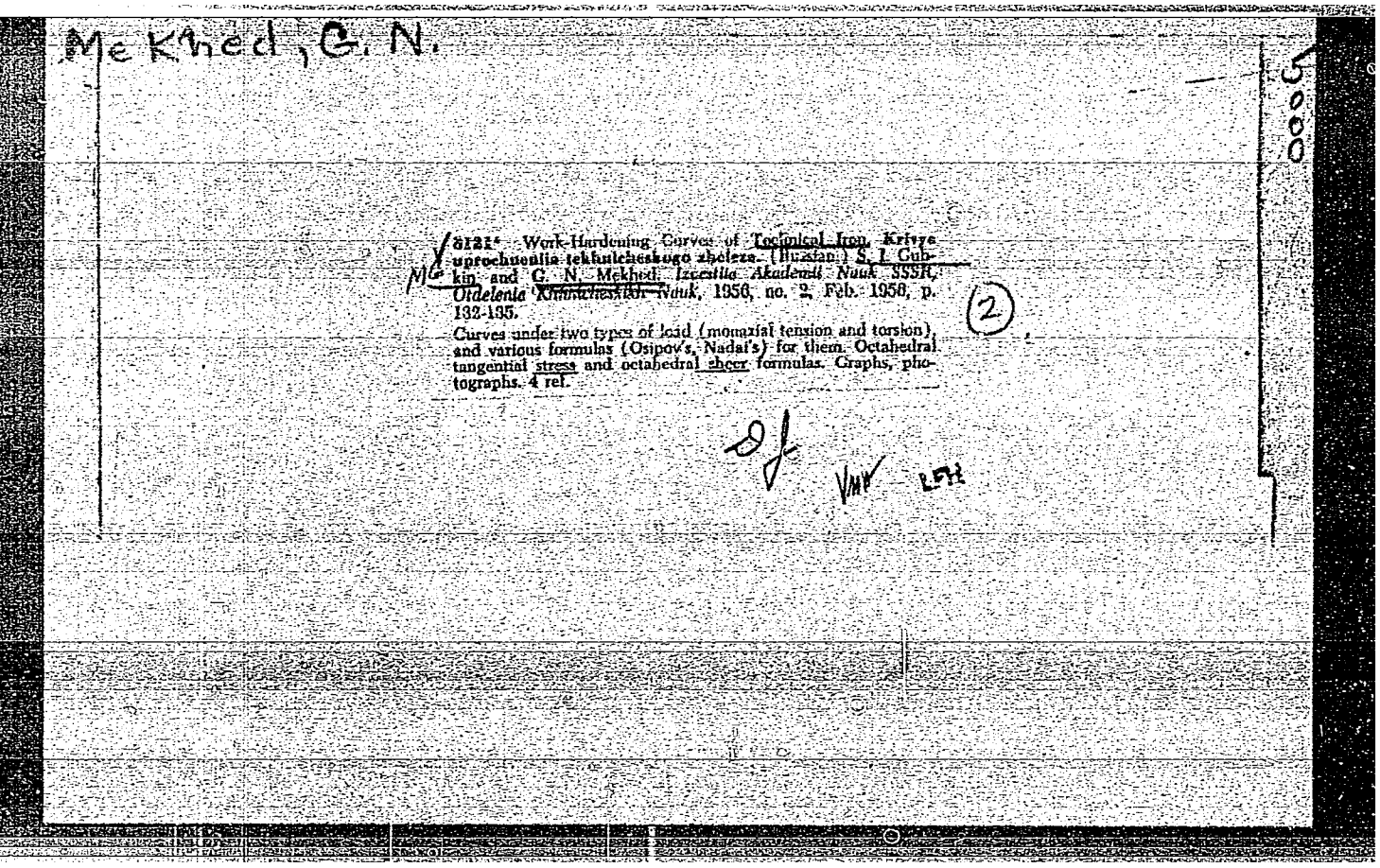


Mekhed, G. N.

5121* Work-Hardening Curves of Technical Iron. Krivye uprochneniia tekhnicheskogo zheleza. (Russian.) S. I. Gubkin and G. N. Mekhed. *Izvestiia Akademii Nauk SSSR, Otdelenia Khimicheskikh Nauk*, 1956, no. 2, Feb. 1956, p. 132-135.

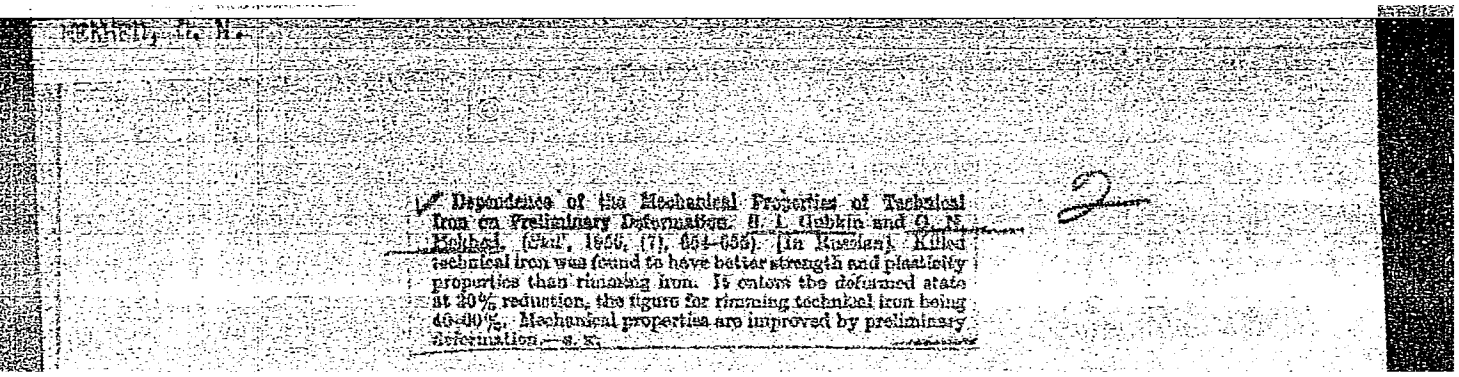
Curves under two types of load (monaxial tension and torsion), and various formulas (Osipov's, Nadai's) for them. Octahedral tangential stress and octahedral sheer formulas. Graphs, photographs. 4 ref.

(2)

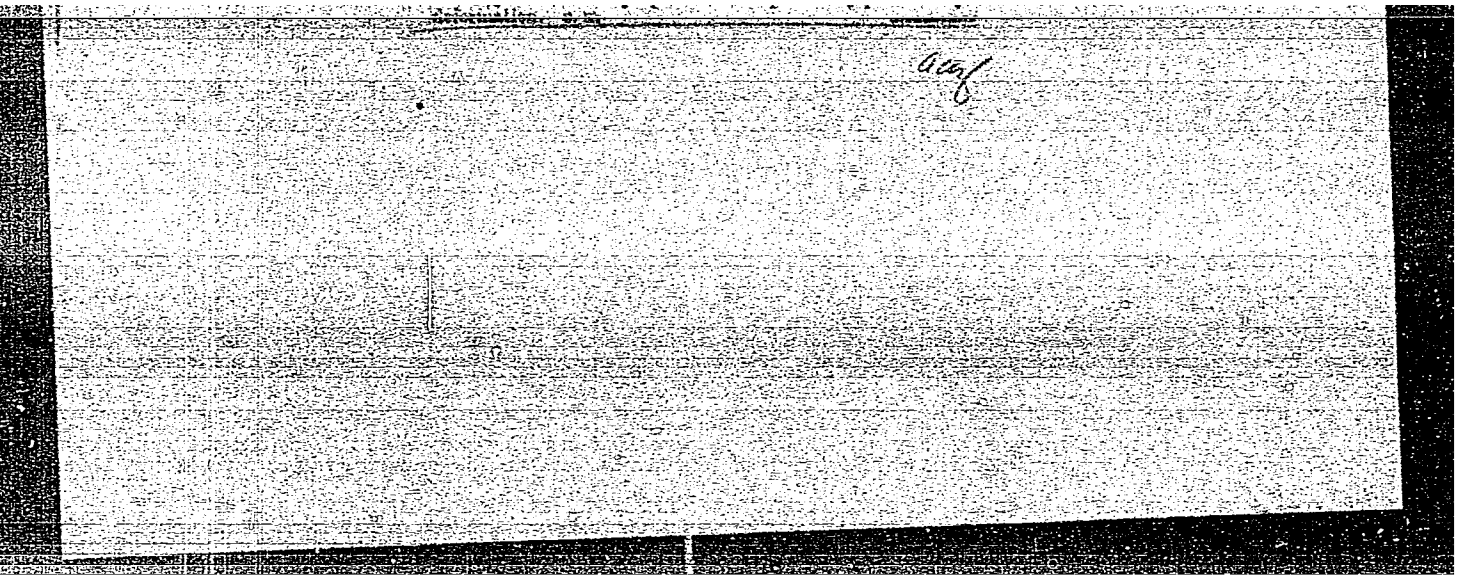
MEKHED, G.N., kandidat tekhnicheskikh nauk.

Investigating the deformability of commercial cast iron. Metalloved. i obr. met. no.8:43-47 Ag '56. (MLRA 9:10)

1. Institut metallurgii Akademii nauk SSSR imeni A.A.Baykova.
(Cast iron--Testing)



Dependence of the Mechanical Properties of Technical Iron on Preliminary Deformation. G. I. Gobkin and G. N. Kolbel. (Stal', 1956, (7), 651–655). [In Russian]. Killed technical iron was found to have better strength and plasticity properties than rimming iron. It enters the deformed state at 20% reduction, the figure for rimming technical iron being 40–60%. Mechanical properties are improved by preliminary deformation.—S. K.



137-58-1-591

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 93 (USSR)

AUTHOR: Mekhed, G. N.

TITLE: An Investigation of the Deformability of High-purity Iron (Issledovaniye deformiruyemosti tekhnicheskogo zheleza)

PERIODICAL: Tr. In-ta metallurgii AN SSSR, 1957, Nr 1, pp 108-113

ABSTRACT: An investigation of deformability was made with killed, rimmed, and electrolytic Fe in the cast and the deformed states. Deformability was evaluated on the basis of indices of plasticity by (dynamic and static) tensile testing, upsetting, a_k, and the rolling of tapered specimens. At low temperatures (20-200°), the plasticity indices are lower for impact loads than for static loads. At temperatures of 850-1050°, the existence of an interval of embrittlement for high-purity Fe is confirmed. The reason for the embrittlement is the presence of S and O. In electrolytic Fe, where the content of these elements has been reduced to a minimum, embrittlement is absent.

V. F.

Card 1/1

1. Iron—Deformation—Test results

MEKHED, G. N.

18(7) PHASE I BOOK EXPLOITATION SOV/3355

Akademiya nauk SSSR. Institut metallurgii. Nauchnyy sovet po probleme sharoprochnykh splavov

Issledovaniya po sharoprochnym splavam, t. IV (Studies on Heat-Resistant Alloys, vol. 4), Moscow, Izd-vo AN SSSR, 1959. 400 p. Errata slip inserted. 2,200 copies printed.

Ed. of Publishing House: V. A. Klimov; Tech. Ed.: A. P. Guseva; Editorial Board: I. P. Bardin, Academician; G. V. Kurdyumov, Academician; N. V. Ageyev; Corresponding Member, USSR Academy of Sciences; I. A. Oding, I. M. Pavlov, and I. F. Zudin, Candidate of Technical Sciences.

PURPOSE: This book is intended for metallurgists concerned with the structural metallurgy of alloys.

COVERAGE: This is a collection of specialized studies of various problems in the structural metallurgy of heat-resistant alloys. Some are concerned with theoretical principles, some with descriptions of new equipment and methods, others with properties SOV/3355 of specific materials. Various phenomena occurring under specified conditions are studied and reported on. For details, see Table of Contents. The articles are accompanied by a number of references, both Soviet and non-Soviet.

Studies (Cont.) SOV/3355

AVAILABLE: Library of Congress

Card 12/12

VK/os
4/12/60

MEKHED, G.N.

Determining the resistance to deformation of metals and alloys at high temperatures. Issl.po zharopr.splav. 4:392-397 '59. (MIRA 13:5)

(Deformations(Mechanics)) (Metals at high temperatures)

MEKHED, G.N.; KOLESNIKOV, S.M.

Automatic presses. Biul. tekh.-ekon. inform. no.10:88-92 '59.
(MIRA 13:3)
(Power presses)

S/193/60/000/003/009/010
A004/A001

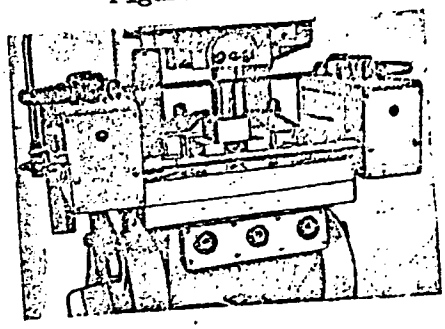
AUTHOR: Mekhed, G. N.

TITLE: Forging and Pressing Equipment in Poland

PERIODICAL: Byulleten' tekhniko-ekonomicheskoy informatsii, 1960, No. 3, pp.68-71

TEXT: The author presents a survey on the production of forging and pressing machinery in the Polish People's Republic and points out that at present 143 models of this kind of machinery are in the design stage or under construction. Eccentric presses of the inclinable and non-inclinable type are being produced with capacities in the range of from 6.3 to 250 tons at the Czenstochova Mechanical Engineering Plant and at the Warsaw and Elblong Forging and Pressing Machinery Plants. The greater part of the press units are standardized, and the electromechanical two-button and treadle control for presses up to 63 tons capacity and electropneumatic control for presses with a capacity exceeding 100 tons ensures

Figure 1:



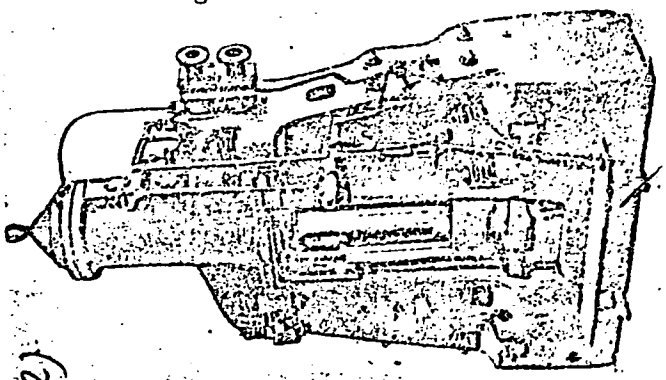
Forging and Pressing Equipment in Poland

all kinds of working strokes of the presses. The Czenstochova Plant produces the PMS16A open-type non-inclinable eccentric press (16 tons), and the inclinable models PMS.3 and PMP10A (see Fig. 1). The PKrR-400 single crank press of 400 tons capacity is under construction, while a double-crank press of 200 tons capacity is being designed. The Warsaw and Elblong Plants have taken up the lot-production of modern friction presses with capacities in the range from 40 - 400 tons. A typical model of this range is the PC-250 single-disk press of 250 tons capacity on which the following operations can be performed: die-forging, impact extrusion, bending of components from sheet material, upsetting of screw heads and straightening of sheet components. It is planned to produce multi-spindle automatic presses of capacities from 25 - 250 tons and high-speed automatic presses with underneath-drive ranging from 6 - 100 tons capacity. The latter are being equipped for automatic operation. The "Zgoda" Mechanical Engineering Plant in Svetokhlovitsakh manufactures in lot-production crank presses of 630, 1,600 and 2,500 tons capacity. The PKK models are used for calibration, die-stamping, drawing and other operations. The Polish industry is going to produce forging presses of 630, 1,000 and 1,600 tons capacity. The PRrK 1600 press of 1,600 tons capacity has been designed and is produced by the Huta Zigmunt Plant. The Central Designing Office of Forging and Pressing Machinery has developed the designs of horizontal presses of

Forging and Pressing Equipment in Poland

up to 12,000 tons capacity, bending presses of 100, 200 and 400 tons capacity and special automatic presses for sheet blanking operations. The Polish industry produces a wide range of forging and die-forging hammers. Air-steam die-forging hammers with reinforced rams and weights of the dropping part from 500 to 5,000 kg are fabricated, as well as hammers with standard rams and counterblow hammers from 13 - 20 tm. Air-steam forging hammers of the arched type, the dropping parts having a weight from 1,000 to 5,000 kg, are under construction, while pneumatic hammers with automatic strokers, power-driven pneumatic hammers with automated and single-stroke control and spring-mounted hammers are being fabricated. The Huta Zigmunt Plant mastered the production of die-forging hammers of the MPM series with reinforced ram and the dropping parts having weights of 1,000, 2,000, 3,000 and 5,000 kg. Figure 2 shows the PMP-1000A

Figure 2:

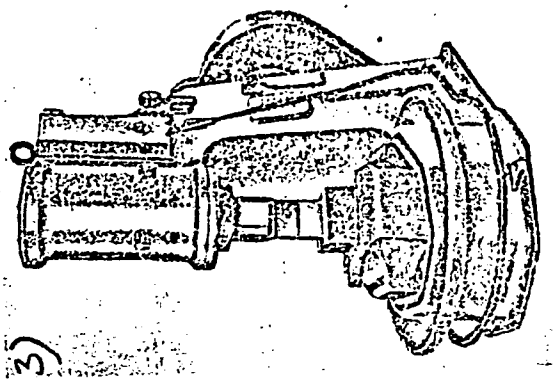


Card 3/5

Forging and Pressing Equipment in Poland

hammer with reinforced ram. The EFUK Plant of Forging and Pressing Equipment produces power-driven pneumatic double-action hammers whose dropping parts weigh from 63 to 630 kg and which are intended for the free forging of carbon and alloy steels and non-ferrous metals. The Stalova Vola Metallurgical Plant fabricates the MS1000A hammers operating with automatic and single strokes. This model is shown in Fig. 3. The table presents the technical specifications of the MS100A, MS160 and MS250 hammers.

Figure 3:



Card 4/5

Forging and Pressing Equipment in Poland

Table:

	hammer models		
	MS100A	MS160	MS250
rated weight of dropping parts, kg	100	162	269
maximum monkey stroke, mm;	370	450	550
distance between monkey axis and bed, mm	350	400	450
size of upper hammer head, mm	150x80	180x100	210x120
work during continuous operation, kg-m	150	350	500
work of single stroke, kg-m	200	420	630
number of monkey strokes per minute	200	175	150
weight of contour forgings, kg	2	-	8
electric motor:			
power, kw	7	14	20
number of rpm	1,440	1,450	-
overall dimensions, mm:			
length	1,895	-	2,345
width	1,040	-	1,240
height	2,050	-	2,530
weight of anvil block, kg	1,200	2,200	3,000
weight of hammer with anvil block, kg	3,750	6,000	8,900

There are 3 figures, 1 table and 2 non-Soviet references.
Card 5/5

8[illegible]

S/509/60/000/004/012/024
E111/E335

18.8200

AUTHOR: Mekhed, G.N.

TITLE: On the Mechanical Properties of Metals and Alloys During Short-duration Loading at Elevated Temperatures

PERIODICAL: Akademiya nauk SSSR Institut metallurgii Trudy, No. 4, 1960, Metallurgiya, metallovedeniye, iziko-khimicheskiye metody issledovaniya, pp. 150 - 157

TEXT: The author states that results of slow static tests do not describe satisfactorily the properties during high-speed deformation of metals and alloys pertaining to forging, stamping, rolling and drawing. Therefore, the results relating to irreversible changes in shape obtained under conditions of slow loading will not correspond with the behaviour of the material under practical conditions of deformation. Under Soviet conditions, tests are usually made with machines with loads of 5 000 and 12 000 kg, in which the deformation is at a rate of 5 - 16 mm/min. In the experiments carried out by the autnor electric resistance furnaces were used which enabled uniform heating of the specimens in muffles at 1 200 - 1 300 °C. He has

Card 1/6

On the Mechanical Properties .....

designed a cartridge for producing tensile shock loads by means of the impact machine MK-3 (MK-30); this has proved reliable and simple in operation at various temperatures. Due to using asbestos insulation and appropriately designing the cartridge, a negligible loss of heat was achieved during the transfer of the specimen from the furnace into the impact test machine. In the investigations technical iron was used of the following composition (%): 0.037 C, 0.11 Mn, 0.19 Si, 0.025 S, 0.011 P, 0.12 Ni, 0.20 Cu and 0.01 O_2. Tests were made with this material under slow conditions of loading on a 5-ton tensile-test machine with a test speed of 12 mm/min, using a furnace which enabled heating of the specimens up to 1 200 °C. Impact tests were carried out with an impact test machine with an energy of 30 kgm, which enabled carrying out impact tensile tests and also heating and maintaining the specimens at a practically constant temperature during fracture. The results are graphed in Figs. 2a and b. It was found that the metal had a reduced plasticity in the following 3 temperature ranges:

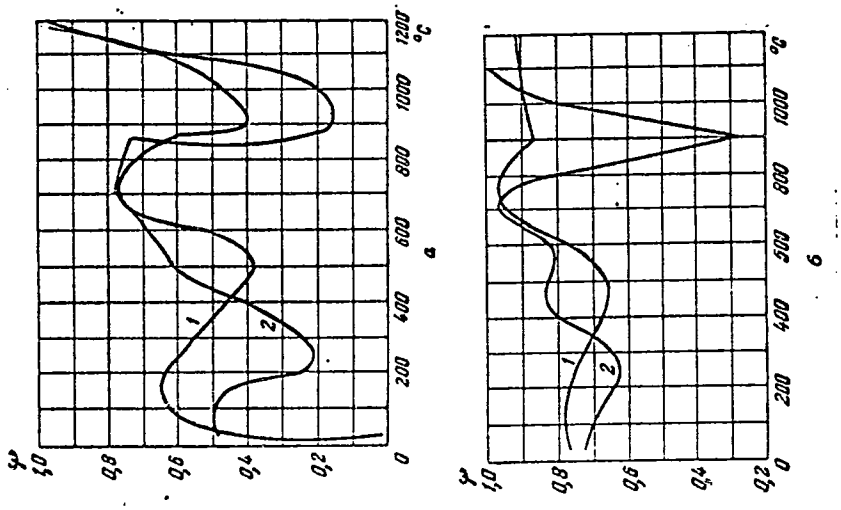
Card 2/6

1) room temperature to 100 °C; 2) 200 to 600 °C; 3) 800 to 1 000 °C. Fig. 2a gives the contraction of the iron in the as-cast state as a function of the temperature; Fig. 2b gives the contraction as a function of temperature for technical iron that has been previously deformed. In both cases Curves 1 pertain to impact loading and Curves 2 pertain to static loading. To determine the influence of the speed of applying the load, tests were made at room temperature with loading speeds between 0.0025 and 5.6 m/sec. The results are shown in Fig. 3 for the as-cast state (dependence of the contraction and elongation on the test speed, v in m/sec, the critical speed being v_{cr} = 1.4 m/sec); at low test speeds the metal has a contraction of 47% and an elongation of 25%. In discussing the behaviour in the medium temperature range, it is stated that Academician N.N. Davidenkov attributes the brittleness of iron alloys to the rejection from the solid solution of oxygen in the form of disperse ferrous oxide, this is confirmed by the here described experiments. Discussing the differences between cast and deformed iron and the loss of plasticity by both materials at about 900 °C the author attributes these to the effect of

impurities (mainly oxygen and sulphur). In both temperature ranges where plasticity is reduced (200-300 and 850-1050 °C) the tensile strength rises. This is shown in Fig. 5, where tensile strength σ_B, kg/mm^2 is plotted against temperature, °C, for the metal in the as-cast (Curve 1) and the deformed (Curve 2) states. The author draws attention to the lack of comparable curves for dynamic loading, noting that although suitable types of equipment have been described they have only been used for room-temperature experiments. He recommends that these should be improved and extended with multichannel oscillographs which must be developed. There are 5 figures and 9 references: 7 Soviet and 2 non-Soviet.

On the Mechanical Properties ....

Fig. 2:



Card 5/6

Fig. 3:

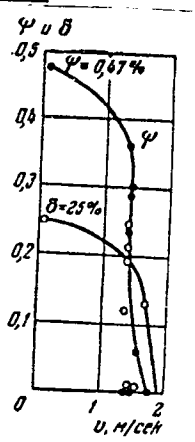
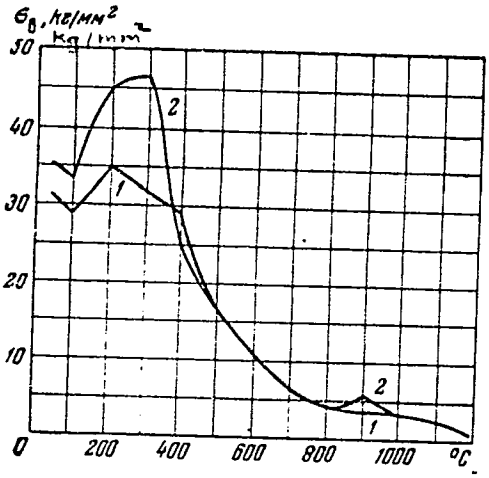


Fig. 5:



Card 6/6

S/509/60/000/004/024/024
E111/E152

AUTHOR: Mekhed, G.N.

TITLE: Influence of Segregation of Elements in Cast Technical Iron on the Plastic Properties of the Metal

PERIODICAL: Akademiya nauk SSSR. Institut metallurgii. Trudy, No.4, 1960. Metallurgiya, metallovedeniye, fiziko-khimicheskiye metody issledovaniya, pp.254-256

TEXT: In the course of the author's work on the mechanical properties of technical iron the question arose as to the extent to which segregation of individual elements could exceed permissible values and how this could affect the non-uniformity of mechanical properties. For investigating this two 800-kg ingots, one rimming and one killed, were selected, with respective compositions as follows:

Composition	C	Mn	Si	S	P	Ni	Cu	O_2
Rimming	0.03	0.05	traces	0.24	0.009	0.13	0.2	0.07
Killed	0.037	0.011	0.19	0.025	0.011	0.12	0.20	0.01

Card 1/ 2

S/509/60/000/004/024/024
E111/E152

Influence of Segregation of Elements in Cast Technical Iron on the Plastic Properties of the Metal

Rimming steel was tapped at 1510 °C, the killed at 1500 °C (deoxidized with 40 kg ferromanganese and 160 kg of 45% silicocalcium in bath and 80 kg aluminium in ladle). Longitudinal 65-mm thick plates were cut out as well as transverse plates (bottom, middle and top). These were analyzed for carbon, manganese, sulphur, aluminium and oxygen, the last on the vacuum fusion installation at the Institut metallurgii imeni A.A. Baykova AN SSSR (Institute of Metallurgy imeni A.A. Baykov AS USSR). The tabulated results show that there is more relative segregation in the rimming than the killed ingot. No significant differences in plasticity were found (rolling of wedge-shaped specimens) between longitudinal and transverse specimens.
There are 2 tables and 6 references: 5 Soviet and 1 English.

Card 2/2

22740
S/509/60/000/007/001/014
E193/E483

10.9230 also 1418, 1416, 1454

AUTHORS: Pavlov, I.M. and Mekhed, G.N.

TITLE: Determination of the Resistance to Deformation of Metals in Impact Bending and Tension

PERIODICAL: Akademiya nauk SSSR. Institut metallurgii. Trudy, No.7. Moscow, 1960. pp.3-14. Metallurgiya, metallovedeniye, fiziko-khimicheskiye metody issledovaniya

TEXT: Proper understanding of the behaviour of polycrystalline aggregates, deformed at elevated temperatures at high rates of strain, has an important bearing on the problems of selection, design and construction of equipment for hot plastic working of metals. Owing to experimental difficulties, encountered in studies of the resistance to deformation of metals subjected to dynamic loads, data yielded by static tests or obtained by indirect dynamic methods have been used for this purpose, leading often to erroneous results. The object of the investigation described in the present paper was to explore the possibility of using a direct method to obtain accurate data on the load-strain-time relationship for metals, deformed under conditions of dynamic

loading. To this end, a specially designed impact testing machine PSWO-1000 (VEB WPM - Leipzig) of the pendulum type was used, in which both tensile and bending tests could be carried out. In addition to the usual facilities for measuring the work done in bending a notched bar (of the beam type) or in fracturing a tensile test piece, the machine was equipped with photo-cells, piezo-electric gauges and an oscillograph. With the aid of these devices, the load-strain and strain-time diagrams could be recorded in the form of oscillograms from which the impact strength and mean resistance to deformation of the metal studied could be calculated, as well as the duration of the deformation process. The equipment (whose detailed description is given) was used to conduct impact bending tests on technical iron with the combined C, S and Mn content of 0.02% at 20 to 1200°C, and impact tensile tests on copper at room temperature. An oscillogram of the type obtained in the bending tests is reproduced in Fig.6 which shows how the load exerted on the test piece (h, middle curve) varied with time (upper waveform, 1 wavelength representing 1/1000 sec) and with the distance travelled by the pendulum (lower waveform, 1 waveform representing 2 mm). By dividing the area under the

load curve by the length of the diagram, the mean force (load) exerted on the test piece could be calculated; the product of the mean load and total strain gave the impact strength of the material tested. The results of the bending tests are tabulated. In Fig.7, the mean force exerted on the test piece (P_{cp}, kg, left-hand scale, curve 3) and the impact strength (a_k, kgm/cm^2, right-hand scale, curves 1 and 2) are plotted against the test temperature (°C), curve 1 representing the values obtained from the angle of deflection of the pendulum (as indicated by the idle pointer) and curve 2 representing the values calculated from the oscillogram. Good agreement between curves 1 and 2 provides a conclusive proof of the accuracy of the new method used in the present investigation. Analysis of the oscillograms, obtained for copper tested in impact tension, showed that the load corresponding to the yield point was higher than that corresponding to the U.T.S. of the material tested. This effect was attributed to the fast rates of strain at which the process of relaxation lags behind the process of strain-hardening. There are 10 figures, 1 table and 1 Soviet reference.

Card 3/7

MEKHED, G.N.

Modern equipment for heating metals in forging and rolling. Biul. tekh.-ekon.inform. no.11:85-89 '60. (MIRA 13:11)
(Forging) (Rolling (Metalwork))

MEKHED, G.N.; SAZAONVA, N.D.

New engineering materials. Biul.tekh.-ekon.inform. no.6:81-85 '61. (MIRA 14:6)
(Materials)

S/193/61/000/008/007/007
A004/A101

AUTHOR: Mekhed, G.N., Candidate of Technical Sciences

TITLE: Forging and pressing equipment in Czechoslovakia

PERIODICAL: Byulleten' tekhniko-ekonomicheskoy informatsii, no. 8, 1961, 92-96

TEXT: The author presents a survey on the development of the Czechoslovakian production of forging and pressing equipment, which has increased since 1948 by a factor of 5 and by 1965 will grow 3 or 4 times more. 600 types and sizes of forging and pressing machinery are produced in Czechoslovakia at present. The author cites some of the achievements in this field of industry and points out that the unified LU series of mechanical crank presses comprises 320 different types and sizes. He describes some of the technical peculiarities of the multipurpose LU250 and LU400/1000 presses, gives a brief description of the design of the vertical forging and punching crank presses of the LKM series and presents the following technical data on the LU400/1000 and LKM1600 presses (data of the latter in brackets): pressing force at the end of the stroke, tons 400 (1,600); slide block stroke, mm - 315, 250 and 200 (280); number of slide block strokes per minute - 21, 24, 27 (90); maximum distance between lower slide

Card 1/3

Forging and pressing equipment in Czechoslovakia

block edge and upper table surface, mm --- (1,000); slide block adjustment, mm - 0-150 (10); clearance between stands, mm - 1,000 (1,250); slide block area, m^2 - 0.88 (1.08); table area, m^2 - 1.2 (1.5); dimensions of table aperture, mm - 500 x 500 (-); stroke of upper and lower ejector, mm --- (40 and 45); power of main drive motor, kw - 36 (75); overall dimensions, mm - length: 3,360 (2,300), width - 2,320 (2,650), height over floor level: 5,100 (6,300) weight, tons - 28.1 (approx. 70). The author then describes some of the hammers being produced by the East-Slovakian Plant in Košice, among others a double-cylinder hammer, with a rated weight of the dropping part of 63 kg, 280 strokes/minute and an impact work of 100 kg-m. Moreover, he mentions the "Prako" spring-type hammers of KAD series with 40, 70 and 100 kg capacity fabricated by the mechanical engineering plant in Trachovce. He gives a brief description of the FH500 electrohydraulic hammer, also produced by the East-Slovakian Plant in Košice, and mentions the following technical data: ram block weight - 500 kg; maximum stroke - 750 mm; oil pump capacity - 150 liter/min; air pressure in the accumulator - 30 atm; maximum ram block dropping speed - 6.32 m/sec; effective kinetic impact energy - 1,000 kg-m; overall dimension of hammer (length x width x height over floor level) - 1,000 x 1,790 x 5,250 mm; weight of hammer with anvil block - 11,750 kg. The author then refers to the automatic and semi-auto-

Forging and pressing equipment in Czechoslovakia

S/193/61/000/008/007/007
A004/A101

matic rotary forging machines of the KRT series which are used recently in Czechoslovakia for the production of various commodities from sheet material. Blanks of 4 to 63 mm in diameter are produced by the hot and cold forging method. For deep drawing, the mechanical KL presses have been designed in Czechoslovakia. They have a capacity of up to 400 tons and a slide block stroke of up to 1,600 mm. The series of double-action draw presses has been supplemented by the LTL160 model, developing a pressing force of 160 - 100 tons. For extrusion work the horizontal model HKL 125 press is being produced. There are 3 figures and 4 Soviet-bloc references.

Card 3/3

MEKHED, G.N., kand.tekhn.nauk

At the French Industrial Exhibition in Moscow in 1961.
Biul.tekh.-ekon.inform. no.1:92-96 '62. (MIRA 15:2)
(Moscow--Exhibitions)
(France--Welding--Equipment and supplies)
(France--Forging machinery)

PAVLOV, I.M.; MEKHED, G.N., kand.tekhn.nauk; VAN YU-MIN [Wang Yu-ming]

Hardening metals by the methods of thermomechanical treatment. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. no.6:92-94 '62. (MIRA 15:7)

1. Chlen-korrespondent AN SSSR (for Pavlov).
(Metals—Hardening)

MEKHED, G.N.

Metal widening during rolling in rolls with a flat barrel. Trudy Inst.met. no.9:115-120 '62. (MIRA 16:5)
(Rolling (Metalwork))

PAVLOV, I.M.; MEKHED, G.N.

Relationship between resistance to deformation and temperature and speed conditions. Trudy Inst.met. no.9:177-184 '62.
(MIRA 16:5)
(Deformations (Mechanics))

PAVLOV, I. M.; MEKHED, G. N., kand. tekhn. nauk; SUVOROV, V. A.

Production and use of iron-aluminum alloys abroad. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. no.12:75-7[illegible] '62. (MIRA 16:1)

1. Chlen-korrespondent AN SSSR (for Pavlov).

(Iron-aluminum alloys)

L 13057-65 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(b) Pf-4 ASD(m)-3 JKT/
NJW/JD/HW/JT/MLK
ACCESSION NR: AT4047717 S/0000/64/000/000/0003/0018

AUTHOR: Pavlov, I.M., (Corresponding member AN SSSR), Mekhed, G.N., Wang, Yu-ming

TITLE: Modern methods of increasing the strength of steel and alloys

SOURCE: AN SSSR. Institut metallurgii. Plasticheskaya deformatsiya metallov (Plastic deformation of metals). Moscow, Izd-vo Nauka, 1964, 3-18

TOPIC TAGS: cold working, alloy heat treatment, alloy strength, thermomechanical working, hardening, tempering, thermomechanical magnetic working, steel strength

ABSTRACT: The development of aviation and rocketry requires new high-strength steels and alloys. Lately, high-strength alloys containing titanium, molybdenum, tungsten, tantalum, niobium and other refractory metal bases are being widely employed. However, steel should not be forgotten. The following methods are known for increasing the

tantalum, niobium and other refractory metal bases are being widely employed. However, common steel should not be forgotten. The following methods are known for increasing the strength of metals and alloys: plastic deformation by cold working, heat treatment when the strength increases by internal cold working effects during phase transformation, formation of saturated solid solutions by the introduction of martensite, formation of crystals with low dislocation density, alloy strengthening, and strengthening by thermomechanical working. In relation to steel, a high ultimate strength is obtained by creating a finely

Card 1/3

dispersed martensitic structure in the metal. Depending on the quantity of dislocations, the strength of annealed steel is many times lower than the theoretical value. One method of strengthening such metals is to lower the number of defects in the metal. The second method is to relocate the dislocations in a certain order by thermal or thermomechanical working consisting of a combination of plastic deformation and heat treatment. Under high

ical properties during thermomechanical working. Steel cooled in air during

Card 2/3

L 13057-65
ACCESSION NR: AT4047717

contains more non-martensitic products located along the slip plane with lower mechanical properties than when the steel is cooled in oil. Tempering affects the properties of steel and alloys during low-temperature thermomechanical working. Tempering lowers the residual stress remaining in the steel after thermomechanical working, and increases the yield point, at the same time lowering the ultimate strength. As the temperature rises in this case, the ratio of the yield point to the ultimate strength increases. It was noted that the strength of steel also increases when the quantity of remaining austenite is lowered. A new method of steel working known as "thermomechanical magnetic working" is also used for increasing steel strength. When the steel is being hardened, at the moment of transformation from austenite into martensite, a strong electromagnetic field is applied to the steel, followed by low-temperature tempering. When the resistance of the magnetic field is increased to 5000 or the effect of thermal magnetic working is found to be significant. Other methods noted in the paper for working of rocket engines are turning-pressure working, thermomechanical working with explosion deformation, shot peening and others. However, there are either few or no publications on these methods. Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy, AN SSSR)

L 13058-65 EWT(d)/EWT(m)/EWA(d)/EWP(v)/EWP(t)/EWP(k)/EWP(h)/EWP(b)/EWP(l)
Pf-4 ASD(m)-3 JD/HW/HLK
ACCESSION NR: AT4047718 S/0000/64/000/000/0019/0021

AUTHOR: Pavlov, I.M., (Corresponding member AN SSSR), Mekhed, G.M., Ganin, N.P., Suvorov, V.A., Wang, Yu-ming

TITLE: Rolling mill for metals and alloys of low plasticity

SOURCE: AN SSSR. Institut Metallurgii. Plasticheskaya deformatsiya metallov (Plastic deformation of metals). Moscow, Izd-vo Nauka, 1964, 19-21

TOPIC TAGS: rolling mill heating, rolling mill cooling, rolling mill design

ABSTRACT: Electrical, high-strength, heat resistant, acid-proof and other special alloys and metals must have high-quality surfaces. During working under pressure in rolling mills or during thermomechanical working, the machinery employed must therefore be heated to eliminate surface defects; this heating is known as technological tool heating. For rolling mills, the rolls are heated either by the hot metal, by gas or by electricity (resistors and induction coils). For the last two methods, the rolls are heated to 100-350C either in the mill or on a special stand. In factories the rolls can be heated in special gas chambers, by gas burners (either in the mill or on the stand), by electrical resistors or by induction coils. Of these methods the simplest is gas heating. Besides heating, cooling is of great importance. The rolls are cooled either by pouring water, blowing air,

Card 1/2

L 15058-65
ACCESSION NR: AT4047718

4

steam or water, or by a flow of water through the roll. A special 250 rolling mill was used by the authors for testing. The mill had two gas burners located 40 mm apart. The length of the heated part of the roll was 120 mm, while the diameter was 240 mm. The bearing spacing was 640 mm. The rolls had two grooves at both sides of the working part for water. The burner design insured proper adjustment of heating intensity both before operation and while rolling. Thermocouples were placed on the mill to measure the temperature of the working surfaces of the rolls. "Mechanics A. Ye. Borisov and S. Aynetdinov and Senior laboratory assistant S. L. Vasyukov took part in the work." Orig. art. has: 2 figures.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy, AN SSSR)

SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 013 OTHER: 000

Card 2/2

L 13059-65 EWT(d)/EWT(m)/EWA(d)/EWP(v)/EWP(t)/EWP(k)/EWP(h)/EWP(b)/EWP(l)
Pf-4 JD/HW/MLK
ACCESSION NR: AT4047719 S/0000/64/000/000/0022/0027

AUTHOR: Pavlov, I.M., (Corresponding member AN SSSR), Mekhed, G.N., Suvorov, V. A.

TITLE: Methods of heating rolling mill rolls

SOURCE: AN SSSR. Institut metallurgii. Plasticheskaya deformatsiya metallov (Plastic deformation of metals). Moscow, Izd-vo Nauka, 1964, 22-27

TOPIC TAGS: rolling mill, roll heating, rolling mill design

ABSTRACT: In a general review of the literature, the authors point out that rolling mill rolls for both hot and cold rolling are heated by plastic deformation of the metal, 90% of the work utilized for metal deformation being transformed into heat, of which 6% heats the rolls. The roll temperature thus depends on the rolled metal temperature, rolling rate, compression, duration of contact of the metal and roll and the coefficient of friction. Sometimes, artificial heating is also used. The roll temperature for hot rolling reaches 300-350C with water cooling and 350-600C with partial or no cooling, while for cold rolling the roll working surface temperature does not exceed 100-150C. Due to unequal heating along their length, the rolls become barrel-shaped, so that to obtain uniform sheets

Card 1/3

the roll shape must be changed in successive mills. The heating of rolls may be divided into three stages: heating of the roll surface with a cold core, uniform heating of the roll across the entire section, and roll cooling. Sheets are usually rolled with cast iron rolls which work satisfactorily at temperatures up to 450C. At higher temperatures, the rolls are fractured due to unequal temperature distribution. Several methods have been proposed for pre-heating rolls, thus lowering the thermal stress. These methods are divided according to the heat source (gas, fuel oil and electricity). The oldest method is heating by the rolled metal. In the thirties, fuel oil heaters began to be used, and later this method was substituted by gas burners either in the rolling mill or on a special stand. The exhaust gases of a heating furnace can be used for heating the rolls of a duo mill. Electrical resistance can also be used for heating. In 1936, N.D. Krupnik proposed electrical heating coils for rolling mills with 655 mm diam. rolls. The electrical current was 110 amp, 30 v. Internal heating of rolls is now being used in the USA, using induction coils which encircle the rolls in a special housing. N.V. Zhukov has proposed using a solenoid around the rolls. During 4-5 hours, 750 mm diam. rolls are heated to 300-350C at 1000 amp, 100 v with 10-12 solenoid turns. Oval induction coils are used in factories in the district near the Ural Mountains, but cylindrical

L 13059-65
ACCESSION NR: AT4047719

induction coils are cheaper. Pre-heating of rolls outside the rolling mill makes it possible to increase production by 450-600 tons/day. Water or steam is also used, e.g., in the Zhdanov factory. In olden times, an open fire was used, and it is also possible to use friction for heating, but the efficiency of this method is low. The choice of the heating method must be determined separately in each case, considering the available equipment.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy, AN SSSR)

SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 025 OTHER: 000

Card 3/3

L 16466-65 EWT(d)/EWT(m)/EWA(d)/EWP(v)/EWP(k)/EWP(h)/EWP(t)/EWP(b)/EWP(l) Pf-4
ACCESSION NR: AT4047729 ASD(f)-2 JD/ S/0000/64/000/000/0119/0144
HW/MLK

AUTHOR: Mekhed, G.N.

TITLE: Mills for the rolling of thin strips

SOURCE: AN SSSR. Institut metallurgii. Plasticheskaya deformatsiya metallov (Plastic deformation of metals). Moscow. Izd-vo Nauka, 1964, 119-144

TOPIC TAGS: rolling mill, roller design, plastic deformation, thin strip rolling, quarto mill, steel rolling, alloy rolling

ABSTRACT: The author presents an extensive review of existent thin-strip rolling mills — both Soviet and Western (principally American) — for the purpose of providing useful material both for designers engaged in the development of new mills for the rolling of thin and very thin strips, and for technical personnel, whose responsibility it is to actually roll such strips. In an introductory section, the importance of the use of specific types of thin strips for various applications is discussed. Tolerance requirements as they apply to milling equipment are specified. In general, the author finds that the choice of the mill design and roll diameter depends on the type of metal to be rolled and on the dimensions and required properties of the strips to be produced, with all the peculiarities of the

Card 1/4

L 16466-65

ACCESSION NR: AT4047729

technological process taken into consideration. This statement is analytically considered and numerical examples and values are given by way of illustration. The introductory section of the article is concluded with the thought that a rolling mill used in the rolling of thin strips should have the following qualities: a high degree of stability for the stand; a ratio of 1000-2000 between the diameter of the working rollers and the thickness of the strip; a high rolling rate; adjustable tension of the strip during the actual rolling process with a high range of adjustable values; and a drive arrangement actuated by direct-current electric motors. The author notes that at the present time two basic types of mills are produced for the rolling of thin strips: multi-roller (12- and 20-roller versions) and four-high (otherwise called "quarto") mills, the working rollers of which have special support structures which prevent their bending in the horizontal plane. In the second part of his paper, the author considers various multi-roller rolling mill designs. The first discussed is the twenty-roller reverse mill, designed at TsNIITMASh and used for the rolling of strips of special steels and alloys having a minimum thickness of 4 microns and width of 120 mm. Basic stock is a strip 0.15 mm thick. The rate of rolling on this mill is 2.5 meters/second. The diameter of the working roller is 8-12 mm. Diagrams are given and the technical specifications of this mill are discussed in great detail. Also

Card 2/4

2

described is a 20-roller mill developed by the Scientific Research Institute of the MRTP in which each working roller is supported on two intermediate support rollers of the first row, which in turn rest on three intermediate support rollers of the second row. This mill is discussed in detail in the paper. It is said to have three speeds: 4, 6.7 and 11.2 meters/minute, and has the capability of rolling strips 30, 60 and 100 mm in width. A summary is given in this section of the article of recently introduced improvements as they apply to multi-roller rolling mills for working thin strips, and which are directed fundamentally at providing better adjustment of sheet thickness during the rolling process. The Rhona 20-roller reverse mill, manufactured in the US by the Loma firm of the Machine Manufacturing Co. is described in this section of the article. The final portion of the paper deals with four-high rolling mills, the distinguishing aspects of their design and construction, their operational capabilities considered in general and as opposed to the multi-roller equipment discussed in the preceding section, their working specifications, advantages, disadvantages and certain trends in their improvement. The actual operation of this equipment is discussed and analyzed in the finest detail on the basis of a large number of schematic and working diagrams and cross-sectional cut-outs. Much attention is directed at the description of various devices and mechanisms which have been proposed to prevent the bending of the working rollers of four-high rolling mills in the horizontal plane. No specific mill types, either Soviet or foreign, are mentioned in this section;

L 16466-65
ACCESSION NR: AT4047729

rather the discussion is of a general and technical nature, dealing with specific design and structural problems and suggestions for improvement. Orig. art. has: 20 figures.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy, AN SSSR)

SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 003 OTHER: 014

Card 4/4

L 45459-65 EWT(m)/EWA(d)/EPR/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) Pf-4/Ps-4
IJP(c) MJW/JD/EM

ACCESSION NR: AP5009269 UR/0370/65/000/001/0136/0140

AUTHOR: Pavlov, I. M. (Moscow); Mekhed, O.N. (Moscow); Suvorov, V.A. (Moscow)

TITLE: Mechanical properties of binary iron-aluminum alloys

SOURCE: AN SSSR. Izvestiya. Metally, no. 1, 1965, 136-140

TOPIC TAGS: alloy mechanical property, binary alloy, iron alloy, aluminum alloy, alloy plasticity

ABSTRACT: This paper is devoted to a study of the temperature dependence of the mechanical properties of Fe-Al alloys containing 8, 11.5, 14, and 16.5% Al and designated Yu8, Yu12, Yu14, and Yu16, respectively. The alloys were prepared in a magnesite crucible by fusion in a vacuum induction furnace of the TsNIIChM experimental plant, using armco iron and AV000 aluminum. All the alloys except Yu8 had a low technological plasticity ($\delta < 5\%$) at room temperature. The strength of all the alloys was between 48 and 68 kg/mm^2. It was found that as the temperature rose from 25 to 300-400 C, after a certain dip, a sharp rise in the ultimate strength was observed, particularly in alloys Yu14 and Yu16. The maximum strength in Yu8 and Yu12 was observed at 300C, and in Yu14 and Yu16, at 400C; the greatest

Card 1/2

L 45459-65

ACCESSION NR: AP5009269

strength was displayed by alloy Yu14, which had an Fe_3Al superstructure. An increase in the plasticity of the Fe-Al alloys with rising temperature promotes an increase in strength. The decline in the strength of all the alloys studied, starting at 400-450C, is due to the start of the process of disorganization and the disappearance of long-range order; the plasticity minimum in this case corresponds to the temperature of the order-disorder transition. The plastic properties or Fe-Al alloys are best described by the value of the elongation per unit length. Orig. art. has: 1 table and 4 figures.

ASSOCIATION: None

SUBMITTED: 26Mar64 ENCL: 00 SUB CODE: MM

NO REF SOV: 005 OTHER: 013

Card 2/2

L 40328-66 EWT(m)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/HW
ACC NR: AP6014112 (N) SOURCE CODE: UR/0370/65/000/006/0076/0079

AUTHORS: Pavlov, I. M. (Moscow); Mekhed, G. N. (Moscow); Suvorov, V. A. (Moscow); Tarasevich, Yu. F. (Moscow)

ORG: none

TITLE: Investigation of the hot-rolling process of iron-aluminum alloys

SOURCE: AN SSSR. Izvestiya. Metally, no. 6, 1965, 76-79

TOPIC TAGS: iron aluminum alloy, aluminum containing alloy, metal rolling, rolling mill, hot rolling / Yu8 iron aluminum alloy, Yu12 iron aluminum alloy, Yu14 iron aluminum alloy, Yu16 iron aluminum alloy, duo 240 rolling mill

ABSTRACT: The specific rolling pressure of iron-aluminum alloys Yu8, Yu12, Yu14, and Yu16 (containing 7.95, 11.55, 14.10 and 16.25% Al by weight respectively) was measured as a function of rolling temperature (300--800C) and compared with the rolling pressure for Armco iron. Specimens (4 x 20 x 100 mm) were cut from hot-rolled (1000--1050C) sheet and rolled on a duo 240 rolling mill at 0.63 m/sec in three passes (10% deformation during each pass). The results are shown in Fig. 1. It was found that the specific rolling pressure increases with aluminum content and decreases with rolling temperature. During the rolling of aluminum alloys having long-range order no significant difference in rolling pressure was found between rolling above and below the order-disorder transition temperature.

UDC: 669.15'71-122.2

Card 1/2

L 40328-66

ACC NR: AP6014112

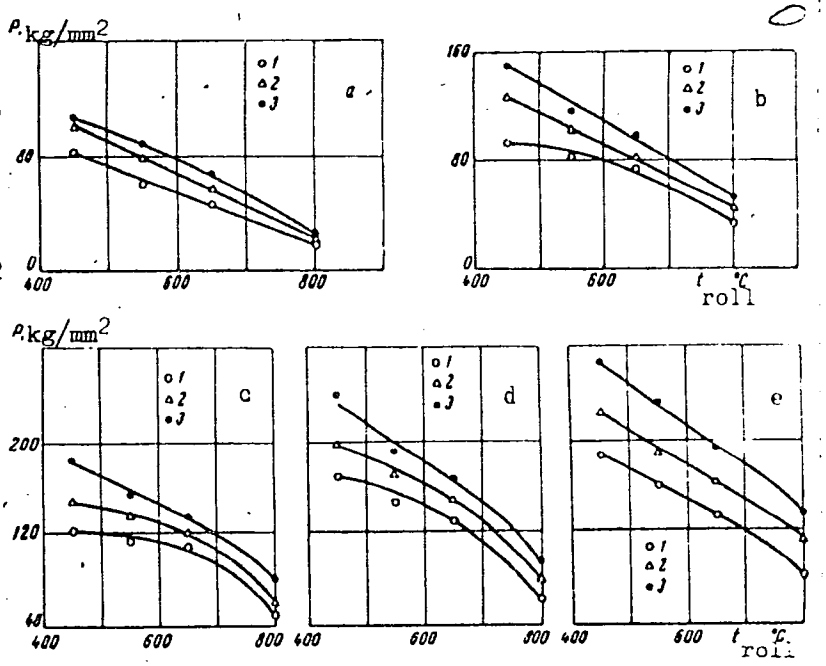


Fig. 1. Specific pressure as a function of rolling temperature for Armco iron (a) and alloys Yu8 (b), Yu12 (c), Yu14 (d), Yu16 (e).

Orig. art. has: 1 figure and 1 equation.

SUB CODE: 13/ SUBM DATE: 14Sep64/ ORIG REF: 011/ OTH REF: 007

Card 2/2

MAVRODIN, V.V., doktor istoricheskikh nauk; MEKHED, G.N., kand.tekhn.nauk

Reviews and bibliography. Vest. AN SSSR 35 no.7:119-126 Jl '65.
(MIRA 18:8)

PAVLOV, I.M.; MEKHED, G.N.; SUVOROV, V.A.

Classifying the processes of working metals by pressure.
TSvet. met. 38 no.2:69 F '65. (MIRA 18:3)

L 45436-66 EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/JH

ACC NR: AP6019767 (A) SOURCE CODE: UR/0370/66/000/003/0090/0093

AUTHOR: Pavlov, I. M. (Moscow); Mekhed, G. N. (Moscow); Suvorov, V. A. (Moscow)

ORG: none

TITLE: Effect of roll temperature on specific pressure in the rolling of iron-aluminum alloys

SOURCE: AN SSSR. Izvestiya. Metally, no. 3, 1966, 90-93

TOPIC TAGS: rolling mill, hot rolling, cold rolling, chemical composition, iron aluminum alloy, temperature effect

ABSTRACT: The problem of reducing the cooling effect of rolls on metal being rolled by preheating the rolls to a given temperature is discussed. A gas-fired Duo 240 mill was used to roll a series of ordered, magnetic Fe-Al alloys (Yu8 7.95% Al, Yu12 11.55% Al, Yu14 14.10% Al, Yu16 16.25% Al), all of which, with the exception of Yu8, have long-range order. These alloys are body-centered cubic in structure and those alloys with more than 12% Al are brittle at room temperature and cannot be cold rolled. Samples of Armco iron were also rolled for purposes of comparison. Two series of samples were rolled at a given temperature in two stages; one series on cold rolls, and the other on rolls heated to 250°C. From plotted data it was noted that specific pressures were higher for cold rolls. The magnitude of specific pressure lowering for the Fe-Al alloys on preheated rolls, as compared with cold rolls, depended on aluminum content, and is explained by the different values for the friction coefficients for

UDC: 621.771.001

Card 1/2

L 15136-66

ACC NR: AP6019767

differing aluminum content and by the abrupt cooling of the rolled metal on cold rolls. Physical properties of the surface layers, and differences in chemical composition of scale, lead to change in friction coefficients. The data cited make it quite evident that warm rolling of Fe-Al alloys on hot rolls significantly reduces the degree to which they are strengthened. Magnitudes of specific pressures obtained in the rolling of Yu12, Yu14, and Yu16 alloys on rolls heated to 250°C after the third pass were almost the same as those for the alloys after the second pass when processed on cold rolls. The rolling of metal on hot rolls makes it possible to reduce the number of passes required in rolling Fe-Al alloys. Roll wear is decreased, an important factor in the rolling of these alloys. Org. art. has: 5 sets of curves.

SUB CODE: 11, 13/ SUBM DATE: 31 May 65 / ORIG REF: 010

Card 2/2

L 07813-67 EWT(m)/EWP(w)/EWP(t)/ETI IJP(c) JD/JH

ACC NR: AR6017493 SOURCE CODE: UR/0137/66/000/001/I071/I072

AUTHOR: Pavlov, I. M.; Mekhed, G. N.; Suvorov, V. A. 36 B

TITLE: Effect of temperature on the mechanical properties of iron-aluminum alloys 14

SOURCE: Ref. zh. Metallurgiya, Abs. 11479

REF SOURCE: Tr. Mosk. in-ta stali i splavov i Mosk. energ. in-ta, vyp. 61, ch. 1, 1965, 169-179

TOPIC TAGS: iron aluminum alloy, metal stress, solid mechanical property

ABSTRACT: Yu8, Yul2, Yul4 and Yul6 Fe-Al alloys were studied with aluminum concentrations of 8.0, 11.5, 14.0 and 16.5% respectively. The alloys have low ductility ($\delta<5\%$, $\psi<5\%$, $a_k<1.3$ kg/cm^2) at room temperature. The mechanical properties depend on temperature and aluminum concentration. Strength increases sharply at 100-200°C. The alloys studied were divided into two groups according to the nature of variation in σ_b with respect to temperature. In the first group are Yu8 and Yul2 which show little change in σ_b(<4%). In the second group are Yul4 and Yul6 which show a considerable increase in σ_b(up to 40%) as temperature is raised, Alloys with 8-16.5% aluminum concentration have two maxima on curves for a_k as a function of temperature. As the

Card 1/2 UDC: 669.15'71

L 07813-67

ACC NR: AR6017493

aluminum concentration in the alloy is increased the first maximum is reduced (from 32 to 10 kg/cm^2) and shifted toward higher temperatures (from 200 to 450°C). At 800°C, σ_b and δ are only slightly dependent on aluminum concentration. From the summary, [Translation of abstract]

SUB CODE: 11

Card 2/2 mc

ACC NR: AR6023514 SOURCE CODE: UR/0277/66/000/003/B006/B006

AUTHOR: Pavlov, I. M.; Mekhed, G. N.; Suvorov, V. A.

TITLE: Effect of temperature on the mechanical properties of iron-aluminum alloys

SOURCE: Ref. zh. Mashinostr mat konstr i raschet detal mash., Otdel'n. vyp., Abs. 3.43.37

REF SOURCE: Tr. Mosk. in-ta stali i splavov i Mosk. energ. in-ta, vyp. 61, sb. 2, 1965, 169-179

TOPIC TAGS: iron aluminum alloy, aluminum alloy property, ductility, ultimate strength

ABSTRACT: Fe-Al alloys were studied with aluminum concentrations of 8.00, 12.50, 14.00 and 16.50% conditionally designated as Yu8, Yu12, Yu14 and Yu16 respectively. Alloys with an aluminum concentration of 12% or more have low ductility ($\delta<5\%$, $\psi<5\%$ and $a_K<1.3$ kg/cm^2) and are brittle at room temperature. The mechanical properties of iron-aluminum alloys depend on temperature and aluminum concentration. There is a sharp increase in strength characteristics at 100-200°C. The alloys may be divided into two groups on the basis of σ_b as a function of temperature. Alloys in the first group (Yu8 and Yu12) show little change in σ_b (less than 4%). In the second group (Yu14 and Yu16) σ_b increases (up to 40%) as the temperature is raised. Alloys with

UDC: 669.15'71

Card 1/2

L 11234-67
ACC NR: AR6023314

an aluminum concentration from 8 to 16.5% have two maxima on σ_k curves. An increase in the concentration of aluminum in the alloy is accompanied by a reduction in the first maximum (from 32 to 10 kg/cm^2) with a shift toward higher temperatures (from 200 to 450°C). At 600°C, σ_b and δ are only slightly dependent on aluminum concentration and show similar values for Yu8, Yu12 and Yu14 alloys. [Translation of abstract]

SUB CODE: 11

Card 2/2 jb

ACC NR: AT7004417 (N) SOURCE CODE: UR/000/66/000/000/0086/0088

AUTHOR: Pavlov, I. M.; Mekhed, G. N.; Ch'ien Tseng-Shih

ORG: Laboratory of Plastic Deformation of Metals, Institute of Metallurgy im. A. A. Baykov (Laboratoriya plasticheskoy deformatsii metallov Instituta metallurgii)

TITLE: Device for static tensile tests of metals and alloys at subzero temperatures

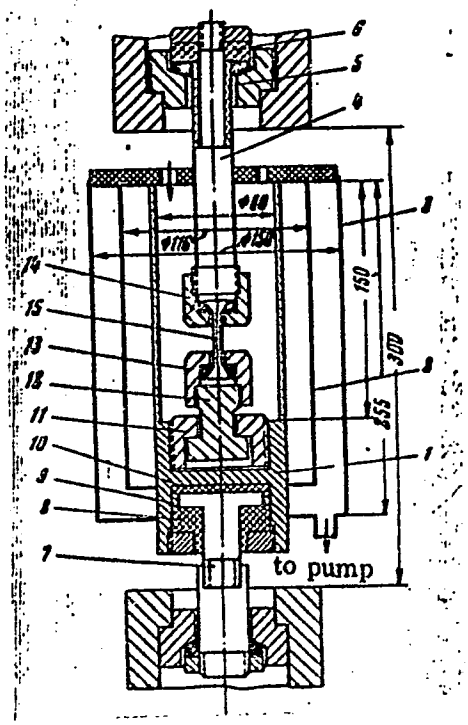
SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 86-88

TOPIC TAGS: tensile test, static test, cryostat, metal test, low temperature research

ABSTRACT: Virtually every device for the tensile testing of specimens at low temperatures (reaching -196°C or even lower) is insufficiently airtight and involves leakage of coolant. This is because the specimen is linked to the lower clamp of the tensile testing machine by a long hose which passes through an opening in the bottom of the coolant container. In this connection, the authors developed in the Institute of Metallurgy im. A. A. Baykov a new improved device for tensile testing of specimens at temperatures as low as -268.8°C. The device (see figure) consists of a steel Dewar vessel containing the coolant mixture and hoses 4 and 7 attached to the clamps of the tensile testing machine. The Dewar vessel consists of three containers 1, 2, 3 of different diameters, inserted one in another. Innermost container 1 is filled with

Card 1/3

ACC NR: AT7004417



Cryostat for tensile tests at subzero temperatures

Card 2/3

ACC NR: AT7004417

with liquid helium, liquid nitrogen or a mixture of liquid nitrogen and gasoline, depending on the subzero temperature desired. During tests with liquid helium the space between the walls of containers 1 and 2 is filled with liquid nitrogen, while air is evacuated from the space between the walls of containers 2 and 3. With the aid of textolite attachments 6, 8, 9, 10 and wood tube 10 the coolant bath is insulated from contact with any metal parts linked to the tensile testing machine. Specimen 15 is attached to hose 4 and work part 12 by means of nuts 13 and 14. Removal of the ruptured specimen and insertion of a new specimen are accomplished by turning work part 12 through 90° so as to release it from nut 11 which is constantly linked to the bottom of the inner container. This device reduces to nil the leakage of coolant and assures an accurate and stable maintenance of the desired temperatures. Its design is simple and compact and it can be successfully operated as an attachment to an IM-12 type standard tensile testing machine. Orig. art.has: 1 figure.

SUB CODE: 13, 11/ SUBM DATE: 27Sep66/ ORIG REF: 016/ OTH REF: 009

Card 3/3

ACC NR: AT7004426 (A) SOURCE CODE: UR/0000/66/000/000/0192/0195

AUTHOR: Pavlov, I. M. (Corresponding member AN SSSR); Mekhed, G. N.; Van Yu-Min

ORG: none

TITLE: Study of the effect of rolling temperature on the mechanical properties of high-strength steels following thermomechanical treatment

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 192-195

TOPIC TAGS: steel, high strength steel, mechanical property, thermomechanical treatment/45KhNT steel, 60KhNYu steel

ABSTRACT: The mechanical properties of 45KhNT and 60KhNYu experimental high-strength steels subjected to a combination treatment of plastic deformation and quenching and tempering have been investigated. It was shown that these steels are characterized by a highly stable zone of supercooled austenite:

Card 1/2 UDC: 669.1

ACC NR: AT7004426

500—600 C range for 45KhNT and above 400 C for 60KhNYu. Following thermomechanical treatment the mechanical properties of these steels are affected greatly by the rolling and tempering temperatures. An increase in rolling temperature decreases the hardness and strength of the steels and increases the plasticity. The optimum temperature for thermomechanical treatment is 500 C for 45KhNT and 500—600 C for 60KhNYu steel. Orig. art. has: 6 figures.

[AM]

SUB CODE: 11, 13/SUBM DATE: 27Sep66/ORIG REF: 005/OTH REF: 002/

Card 2/2

ACC NR: AT7004428 (A) SOURCE CODE: UR/0000/66/000/000/0199/0202

AUTHOR: Pavlov, I.M. (Corresponding member AN SSSR); Mekhed, G.N.; Van Y -Min

ORG: none

TITLE: Effect of the roller surface temperature and rolling speed in low-temperature thermomechanical treatment on the mechanical properties of 45KhNT and 60KhNYu steels

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 199-202

TOPIC TAGS: HOT ROLLING, TENSILE STRENGTH, ELONGATION, high strength steel, ~~steel~~ thermomechanical treatment, ~~low temperature thermomechanical treatment, steel property,~~ low alloy steel/45KhNT steel, 60KhNYu steel

ABSTRACT: Specimens of 45KhNT and 60KhNYu steels, oil-quenched and tempered at 200°C for 1.5 hr, were rolled at 500°C with a 60% reduction at a constant speed of 1.25 m/sec and a roller surface temperature of 20, 150 and 250—260°C. Increasing the roller surface temperature from 20 to 250°C had a very slight effect on the tensile and yield strengths and

Card 1/2 UDC: 669.1

ACC NR: AT7004428

hardness of 45 KhNT steel; however, the reduction of area increased from 11 to 22% and the elongation from 2.5 to 6%. Increasing the roller temperature from 20 to 250°C increased the tensile strength of 60KhNYu steel from 192—193 to 250 kg/mm^2, the reduction of area from 3.4 to 9.5%, and the elongation from 0.6 to 4.7%; however, the changes in the yield strength and hardness were insignificant. The high strength and ductility of 60KhNYu steel can be explained by a more homogeneous martensitic structure resulting from rolling with hot rollers. The steels were also rolled with a 40% reduction at a constant roller surface temperature of 250—260°C at a rolling speed varying from 0.75 to 2 m/sec. Rolling in the 0.75—1.25 m/sec range of rolling speed was found to be the most effective. It increased the tensile strength of 45KhNT steel from 220 to 230 kg/mm^2, the yield strength from 175 to 185 kg/mm^2, and the reduction of area from 20 to 24%, but had practically no effect on the steel hardness and elongation. Similarly, the tensile strength of 60KhNYu steel increased from 237 to 243 kg/mm^2, the yield strength from 163 to 171 kg/mm^2, the reduction of area from 6.5 to 7%, the elongation from 2.3 to 3.5% and the RC hardness from 60 to 61.5 units. Further increases in the rolling speed had practically no effect on the mechanical properties of 45KhNT and 60KhNYu steels under the investigated conditions of thermomechanical treatment. Orig. art. has: 6 figures. [MS]

SUB CODE: 11, 13/ SUBM DATE: 27Sep66/ ATD PRESS: 5116

Card 2/2

MEKHED, I. N.: Master Tech Sci (diss) -- "Increasing the heating temperature of steel for stamping, using electrical heating methods". Minsk, 1958. 14 pp (Beloruss Polytech Inst im I. V. Stalin), 150 copies (KL, No 6, 1959, 124)

SEVERDENKO, V.P.; MEKHED, I.N.

Plasticity of steel during induction heating. Dokl. AN BSSR 3 no.7: 303-305 Jl '59. (MIRA 12:11)
(Steel)

SEVERDENKO, V.P., MEKHED, I.H.

Effect of temperature of deformation on the properties of steel.
Dokl.AN BSSR 4 no.7:295-297 Jl '60. (MIRA 13:8)

1. Fiziko-tekhnicheskiy institut AN BSSR.
(Steel--Thermal properties)

MOLOSAYEV, I.P.; MEKHED, I.N.

Studying the temperature conditions of dies in hot forging. Kuz.-shtam. proizv. 3 no.11:21-22 N '61. (MIRA 14:11)
(Dies (Metalworking)) (Forging)

SEVERDENKO, V.P.; MEKHED, I.N.

Studying the thermal pattern of the performance of dies in hot stamping. Dokl.AN BSSR 5 no.5:212-214 My '61. (MIRA 14:5)

1. Fiziko-tekhnicheskiy institut AN BSSR.
(Dies (Metalworking))

KLAVIN, N.; GRIGOR'YEV, G.; MEKHED, V.

Millionaires take council. Grazhd.av. 20 no.2:18-24 F '63. (MIRA 16:3)
(Air pilots) (Aeronautics, Commercial)

MEKHEDA, M.

Peaceful coexistence. Nauka i zhyttia 12 no.12:36-37 D '62.
(MIRA 16:8)

1. Sekretar' Khmel'nitskogo oblastnogo komiteta Kommunisticheskoy partii Ukrainy.

MEKHEDA, M.I., redaktor; ZINOVICH, I.Ye., redaktor; ROMANENKO, I.N., redaktor; SULKOVSKAYA, M.A., redaktor; ZUBRILINA, Z.P., tekhnicheskiy redaktor; GUREVICH, M.M., tekhnicheskiy redaktor

[Our experience in studying the collective farm economy; a collection of articles based on a Khmel'nitskiy Province agricultural conference] Nash opyt izucheniia kolkhoznoy ekonomiki; sbornik statei po materialam Khmel'nitskoy oblastnoi ekonomicheskoi sel'skokhoziaistvennoi konferentsii. Moskva, Gos. izd-vo selkhoz. lit-ry, 1956. 166 p.
(Collective farms) (MLRA 9:12)

MEKHEDA, M.I., red.; IGNATOV, O.S. [Ihnatov, O.S.], red.; OSETROV, O.F. [Osietrov, O.F.], red.; SOKOLENKO, Ya.O., tekhn.red.

[Khmel'nitskiy Province in 40 years of the Soviet regime] Khmel'nyts'ka oblast' za 40 rokiv radians'koi vlady. Khmel'nyts'kyi Oblvydav, 1957. 133 p. (MIRA 14:3)
(Khmel'nitskiy Province--Economic conditions)

RENGEVICH, A.A., kand.tekhn.nauk; SHAKHTAR', P.S., inzh.; VOLOD'KO, K.P., inzh.; YUSHCHENKO, A.I., inzh.; GALUSHKO, M.K., kand.tekhn.nauk; KUZNETSOV, B.A., kand.tekhn.nauk; KUDELYA, G.Ya., inzh.; MEKHEDA, M.K., inzh.; OKHRIMCHUK, O.Kh., tekhnik

Causes of the breaking of axles of electric mine locomotives. Vop. rud. transp. no.6:192-203 '62. (MIRA 15:8)

1. Dnepropetrovskiy gornyy institut (for Rengevich, Kuznetsov, Kudelya, Mekheda, Okhrimchuk). 2. Donetskiy nauchno-issledovatel'skiy ugol'nyy institut (for Shakhtar', Galushko). 3. Aleksandrovskiy mashinostroitel'nyy zavod (for Volod'ko, Yushchenko).
(Mine railroads) (Axles--Testing)

RENGEVICH, A.A., kand.tekhn.nauk; MEKHEDA, M.K., inzh.; DASHEVSKAYA, Ye.A., inzh.; LUCHININA, R.V., inzh.; OKHRIMCHUK, O.Kh., tekhnik

Basic resistance to movement of mine cars in a train. Vop. rud. transp. no.6:318-334 '62. (MIRA 15:3)

1. Dnepropetrovskiy gornyy institut.
(Mine railroads)

RENGEVICH, A.A., kand.tekhn.nauk; MEKHEDA, M.K., inzh.

Power consumption and battery discharge conditions in using accumulator electric locomotives for haulage. Sbor.DonUGI no.23:154-169 '62. (MIRA 16:2)
(Mine railroads)

RENGEVICH, A.A., doktor tekhn.nauk; MEKHEDA, M.K., inzh.

Calculation of the weight of a train for conditions found in Krivoy Rog Basin mines. Vop. rud. transp. no.7:195-210 '63. (MIRA 16:9)

1. Dnepropetrovskiy gornyy institut.
(Krivoy Rog Basin--Mine railroads)

MEKHEDA, V.P.

BIII-2

.BA

Predefecation with unfiltered first saturation juice. V. Mekheda and V. Halyura (*Sakhar. Prom.*, 1951, No. 10, 11—12; *Sug. Ind. Abstr.*, 1951, 13, 181).—In the K'ádoruvskii sugar factory, alkaline unfiltered first saturation juice (0·25% of CaO supplied by lime or limed juice) is used for predefecation. Juice is heated to 100° before second saturation so that subsequent filtration is at 90—95°. P. S. ARUP.

MEKHEDA, V.P.

Natural gas as fuel for limekilns. Sakh. prom. 33 no.11:43-47 N '59 (MIRA 13:3)

1. Stanislavskiy sovnarkhoz.
(Limekilns)

MAKAREVICH, L.F.; ZHUK, V.L.; BALYURA, V.I.; MEKHEDA, V.P.; YAKOVENKO, A.G.

Work of separation plants. Sakh.prom. no.4:17-20 Ap '60.
(MIRA 13:8)

1. Chernovitskiy sakhsveklotrest (for Makarevich, Zhuk, Balyura).
2. Stanislavskiy sovnarkhoz (for Mekheda). 3. Bovshevskiy sakharnyy zavod (for Yakovenko).
(Sugar industry)

MEKHEDKO, F.

"Investigation of the Rate of Response of an Exciter in Series Excitation Under Dynamic Conditions." Cand Tech Sci, Minsk Polytechnic Inst imeni I. V. Stalin, Min of Higher Education USSR, Minsk, 1954. (KL, No 8, Feb 55)

SO: Sum. No. 631, 26 Aug 55-Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

FRENKEL', I.L., inzh.; MEKHEDKO, F.V., kand.tekhn.nauk, red.; BARTMAN, B.I., tekhn.red.

[Ways of increasing the power coefficient in industrial enterprises] Puti povysheniia koeffitsienta moshchnosti na promyshlennykh predpriiatiiakh. Minsk, Vses. nauchno-tekhn.ob-vo energ. promyshl., Belorusskoe respublikanskoe otd-nie, 1957. 59 p. (MIRA 11:3)
(Electric engineering)

SOV-3-58-9-36/36

AUTHORS: Geyler, L.B., Professor, Doctor of Technical Sciences; Kuznetsov, B.V., and Mekhedko, F.V., Docents; Satsukevich, M.F. and Sheyna, G.P., ~~Senior~~ Instructors

TITLE: A Textbook on the Electrical Equipment of Metal Cutting Machine Tools (Uchebnik po elektricheskomu oborudovaniyu metallorezhushchikh stankov)

PERIODICAL: Vestnik vysshey shkoly, 1958, Nr 9, pp 95-96 (USSR)

ABSTRACT: This is a review of the textbook by I.V. Kharizomenov "Electrical Equipment of Metal Cutting Machine Tools".

ASSOCIATION: Belorusskiy politekhnicheskiy institut imeni I.V. Stalina (Belorussian Polytechnical Institute imeni I.V. Stalin)

Card 1/1

GEYLER, L.B., prof., doktor tekhn.nauk; MEKHEDKO, F.V., dotsent, kand. tekhn.nauk

Reply to Professor A.IA. Berger's article "Airgap of an electric machine is its third principal parameter." Izv. vys. ucheb. zav.; elektromekh. 4 no.5:109-110 '61. (MIRA13:7)
(Electric machinery)
(Berger, A.IA.)

KUZNETSOV, B.V.; MEKHEDKO, F.V.; SATSUKEVICH, M.F.; SHEYNA. G.P.;
KASHTANOV, F., red.; DOMOVSKAYA, G., tekhn.red.

[Electrical systems in homes] Elektroustanovki v domashnem bytu. Minsk, Gos izd-vo BSSR. Redaktsiia proizvodstvennoi lit-ry, 1962. 107 p. (Biblioteka elektromontera, no.5)
(MIRA 16:6)

(Household appliances, Electric)

SATSUKEVICH, Mikhail Fedorovich; MEKHEDKO, Fedor Vasil'yevich; KUZNETSOV, Boris Vladimirovich; SHEYNA, Gennadiy Petrovich; KASHTANOV, F., red.; YERMOLENKO, V., tekhn. red.

[Brief information on electrical engineering] Kratkie svedeniia iz elektrotekhniki. Minsk, Gos. izd-vo BSSR. Red. proizvodstvennoi lit-ry, 1962. 130 p. (Bibliotechka elektromontera, no.1) (MIRA 16:6)

(Electric engineering)

KUZNETSOV, B.V.; MEKHEDKO, F.V.; SATSUKEVICH, M.F.; SHEYNA, G.P.;
KASHTANOV, F., red.; NOVIKOVA, V., tekhn. red.

[Electric power distribution networks with voltages up to 1000 volts] Elektricheskie seti napriazheniem do 1 000 v. Minsk, Gos. izd-vo BSSR. Red. proizvodstvennoi lit-ry, 1962. 149 p. (Bibliotechka elektromontera, no.2) (MIRA 16:6)

(Electric power distribution)
(Electric lines--Overhead)

SHEYNA, Gennadiy Petrovich; KUZNETSOV, Boris Vladimirovich; MEKHEDKO, Fedor Vasil'yevich; SATSUKEVICH, Mikhail Fedorovich; KASHTANOV, F., red.; NOVIKOVA, V., tekhn. red.

[Electric measuring devices and metering of electric power] Elektroizmeritel'nye pribory i uchet elektroenergii. Minsk, Gos.izd-vo BSSR. Red. proizvodstvennoi lit-ry, 1963. 141 p. (Bibliotechka elektromontera, no.3) (MIRA 16:6)
(Electric meters) (Electric measurements)

MEKHEDKO, Fedor Vasil'yevich; KUZNETSOV, Boris Vladimirovich; KASHTANOV, F., red.

[Asynchronous motors] Asinkhronnye dvigateli. Minsk, Izd-vo "Belarus'," 1963. 157 p. (Bibliotechka elektromontera, n.10) (MIRA 17:5)

MEKHEDKO, F.V., kand.tekhn.nauk, dotsent; MINKOVSKIY, D.I., kand.tekhn. nauk, dotsent; KRASIN, V.P., kand.tekhn.nauk, dotsent

Review of I.V.Voloshin's monograph "Direct current networks containing thermistors." Izv. vys. ucheb. zav.; energ. 7 no.3:122-123 Mr '64. (MIRA 17:4)

KUZNETSOV, Boris Vladimirovich; MEKHEDKO, Fedor Vasil'yevich;
KASHTANOV, F., red.

[Welding transformers and generators; their installation and operation] Svarochnye transformatory i generatory: ustroistvo i ekspluatatsiia. Minsk, Belarus', 1964. 138 p.
(MIRA 17:12)

MEKHELKO, F.V., otv. red.; KUZNETSOV, B.V., red.; MOSEYEV, I.V., red.; POLZIK, P.V., red.; SOLITERMAN, L.V., red.; TELESH, B.M., red.; TSEMTSIPER, M.S., red.; YUR'YEVICH, G.S., red.

[Exchange of experience in production and technological techniques in power engineering] Obmen proizvodstvenno-tekhnicheskim opytom po promyshlennoi energetike. Minsk, 1965. 105 p. (MIRA 18:10)

1. Nauchno-tekhnicheskoye obshchestvo energeticheskoy promyshlennosti. Belorusskoye otdeleniye.

MEKHEDOV, A.I.

Organization of business accounting in departments of metallurgical plants. Stal' 25 no.6:560-562 Je '65.
(MIRA 18:6)

1. Nizhne-Tagil'skiy metallurgicheskiy kombinat.

DUBROVSKAYA, I.I.; BITKOVA, A.N.; GOSTEV, V.S.; MEKHEDOV, L.N.

Immunochemical study of antigen complexes obtained by various methods from Salmonella paratyphi and Eberthella typhosa cultured on various media. Zhur.mikrobiol. epid. i immun. 27 no.10:22-28 O '56. (MLRA 9:11)

1. Iz Instituta epidemiologii i mikrobiologii imeni N.F.Gamelei AMN SSSR.

(ANTIGENS,
Salmonella paratyphi & S. typhosa antigens from strains cultured on various media (Rus))
(SALMONELLA TYPHOSA, culture,
antigens from strains cultured on various media (Rus))
(SALMONELLA PARATYPHI, culture,
same)

MEKHEDOV L.N

DUBROVSKAYA, I.I.; BITKOVA, A.N.; GOSTEV, V.S.; MEKHEDOV, L.N.

Immunochemical examination of antigenic substances obtained by various methods from dysentery bacteria grown on a synthetic medium. Zhur.mikrobiol.epid. i immun. 28 no.4:126-133 Ap '57. (MIRA 10:10)

1. Iz Instituta epidemiologii i mikrobiologii imeni N.F.Gamalei AMN SSSR.

(SHIGELLA DYSENTERIAE, immunol.
antigenic substances, chem. characteristics)
(ANTIGENS,
antigenic substances of Shigella dysenteriae, chem. characteristics)

17 (2) SOV/16-59-9-25/47

AUTHOR: Kovaleva, N.I. and Mekhedov, L.N.

TITLE: Aspects of the Multiplication of Shigella Dysenteriae on Synthetic Media With Aeration

PERIODICAL: Zhurnal mikrobiologii, epidemiologii i immunobiologii, 1959, Nr 9, pp 117-121 (USSR)

ABSTRACT: Fisher, Ostrovskaya, V.G. Drobot'ko, S.I. Gorodinskiy and B.Yu. Ayzenman have demonstrated that the individual representatives of the enteric group of bacteria show differing ability to utilize the various nitrous substances contained in nutrient media. In subject work the authors set out to study the course of consumption of nitrous substances by Shigella sonnei in the process of their growth on synthetic media with aeration. The tests showed that depth cultivation of Shigella sonnei with aeration intensified metabolism with the result that the consumption of nitrous substances was many times more intensive than when the bacteria were cultured under stationary conditions. Nitrous substances should therefore be introduced into aerated cultures in the process of growth. The addition of nitrous substances

Card 1/2

Aspects of the Multiplication of Shigella Dysenteriae on Synthetic Media With Aeration

intensified growth and increased the end concentration of microbe bodies. As sources of nitrogen, Shigella sonnei assimilated ammonium citrate and ammonia. The power of Shigella sonnei to assimilate undiluted ammonia was weaker than its power to assimilate ammonium citrate and this was reflected on the growth in media where one or the other of these two substances was the only source of nitrogen
There are: 2 tables, 2 graphs and 5 references, 3 of which are Soviet and 2 German

ASSOCIATION: Institut epidemiologii i mikrobiologii imeni Gamalei AMN SSSR (Institute of Epidemiology and Microbiology imeni Gamaleya of the AMN, USSR)

SUBMITTED: August 22, 1958

MEKHEDOV, N. P.

"Cancer of the Womb in an Eleven Year Old Girl," Sov. Med., No. 5, 1949.
Mbr., Nerchinsk Rayon Municipal Hosp. -c1949-.